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ABSTRACT

There is an emerging research base on teacher effectiveness that should be used in redesigning teacher education programs. However, the complexity of teaching and learning does not permit simple solutions to complex problems. Several studies, projects, and programs with the goal of conducting research for teacher education programs are discussed. A major responsibility of teacher preparation programs is to provide a context for rendering professional judgments. Structures to encourage constant updating of the knowledge base must be developed within teacher education institutions. On-going research projects need to be developed in which faculties are actively involved in preservice programs. Research, designed to diagnose and develop teaching potential within teacher education candidates, should focus on the examination of both optimum generic teaching strategies and teaching styles for specific levels and areas of education. (JD)

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RESEARCH-BASED TEACHER EDUCATION

William H. Peters

To paraphrase Charles Dickens, it is the best of times and it is the worst of times for educators. It is the best of times because education is at last receiving the careful consideration of both the politicians and the public needed to provide support to carry out its tasks; it is the worst of times because education is receiving criticism much of which is undeserved and over which it has little control. However, it is within the context of such times that much can be achieved both by public schools and by institutions concerned with teacher education.

TEACHER EDUCATION

Teacher education experiences include the program features and student teaching experiences provided in teacher education programs. As one reviews more recent literature in teacher education, it becomes clear that a predominant theme is the need for any quality teacher education program to provide a pedagogical component that emphasizes generic teaching competencies. For example, Howsam, Corrigan, Denemark, and Nash (1976) used the term professional culture to designate the knowledge, skills, behaviors, attitudes, and values that make up the collective basis for practices and decision making by members of a profession. A paper which evolved out of the experiences of the Dean's Grants Projects contains a substantive discussion of and recommendations for competency clusters or domains which are derived from Public Law 94-142 and which define a common core of requirements or a professional culture for all teachers. Lindsey (1978) described generic competencies essential to teaching any curriculum to any age group in any setting. Denemark and Nutter (1980) proposed seven generic teaching competencies not unlike those competencies identified by B. O. Smith (1980).

A recent attempt to incorporate a knowledge base into the preservice programs of teacher education has taken place at the University of Florida through its *Pro-Teach Project*. The generic pedagogical component of the *Pro-Teach Project* divides the roles and functions of the teacher into three areas: (1) teacher as teacher; (2) teacher as person; and (3) teacher as professional. Each of these areas is subdivided into content areas. For example, teacher as teacher has five categories: (1) diagnosis; (2) instructional planning; (3) instructional management; (4) observation; and (5) interpersonal relations. Each of these areas has appropriate knowledge and behaviors specified and each is validated by a research base. The most comprehensive description of the knowledge base for teacher education in the profession is the *Florida Beginning Teacher Program*, Florida Teacher Education Certification and Inservice Development Department (B. O. Smith,1981). Special use was made of research on teachers' pedagogical judgment, plans, and decisions as developed by the Rand Corporation with the support of the National Institute of Education and of the work of Brophy (1978) on Classroom Organization and Management.

To upgrade the education profession, the American Association of Colleges for Teacher Education (AACTE) and the National Education Association (NEA) have described ideal frameworks for initial teacher preparation programs. Howsam et al. (1976) organize the generic teaching knowledge and skills common to all teaching experiences and useful in every subject field, grade level and student population into types of categories and consider them in relation to stages of the teaching act. Acco ding to these writers, preactive skills are those used by the teacher in planning for the actual teaching activity. Interactive skills are those used by the teacher in the actual conduct of class activities. Other active skills are those that either bridge the first two categories (e.g., evaluation) or demand proficiency in dealing with others. To stimulate significant improvements in the quality of instruction, the NEA's document *Excellence in Schools, Teacher Education: An Action Plan* (Robinson, 1982) focuses on major functions of teaching in the classroom: (1) facilitating learning; (2) managing the classroom; and (3) making decisions. These functions are considered as essential for successful practice and are recommended as the basis for the design, development and implementation of college programs. A sample of teacher actions is provided under each of the functions.

Teacher education institutions, then, are beginning to incorporate into preservice programs the social science research literature associated with teaching and learning to support their programs and to validate theoretical frameworks being constructed for initial teacher preparation programs.

TEACHER PROPERTIES

Teacher properties consist of the measurable personality characteristics which the teacher takes into the teaching situation. The personality and teaching style of the teacher, whether contrived or spontaneous, appear to influence the environment to which the student is responding and adjusting, and what transpires in the classroom between the teacher and student is apparently influenced to a great extent by the teacher. McKeachie, Isaacar & Milhall (1964) found such elements as a sympathetic attitude and self-reliance as important teacher behaviors when dealing with situations in which a teacher attempts to communicate with students. Analyzing taped discussions, Taba (1964) made it evident that the teacher's behavior has enormous influence on the thought processes of students. Alexander and Elson (1971) studied the effects of teacher-initiated personal interactions on the achievements of students, and findings from this study emphasized the importance of affective teacher variables for student learning at higher levels. Harris (1973) found that students taught by a teacher who modeled flexible, divergent, or creative behavior increased in creative behavior more than students with teachers who did not provide such modeling. Experimental studies of questioning by Ward and Tikunoff (1975) and by the Stanford Program on Teaching Effectiveness (1976) found that students who were in classes where more recall questions were asked did slightly better on recall tests, yet students did equally well on integrative questions regardless of what percent of recall questions were asked in class. In a similar vein, Wright and Nuthall found significant positive results in student responses when teachers exhibited a probing behvior (1970); yet Brophy and Evertson

did not find a relationship between seeking improved responses and achievement (1976).

In order to investigate the effects of teacher characteristics on pupil achievement, observation of actual instances of instruction in the classroom becomes paramount. Techniques for measuring classroom behaviors began to be available when Medley and Mitzel (1958) published the Observation Schedule and Record (OScAR) and when Flanders (1960) published the initial findings of his Interaction Analysis Categories system (FIAC). Rosenshine (1976) reports that the work of such individuals as Flanders, Medley, and Mitzel ushered in the modern era of studies on teacher effectiveness. Even in this modern era only a limited number of studies which investigate the relationship between classroom instruction and student achievement has been conducted and the number of researchers involved is equally small.

GRADE/SUBJECT DIFFERENCES AND TEACHER EFFECTIVENESS

That any quality teacher preparation program will provide a pedagogical component that emphasizes generic teaching competencies seems to have been recognized and accepted in most of today's educational circles. However, we must be mindful of the points that Medley (1979) makes when he suggests that any given teacher competency may be used only under certain circumstances or contexts and when he suggests that we must take into account not only how teachers behave, but when and why they behave as they do as we conduct research into teacher competencies. Soar and Soar (1983) provide us with the same type of caution when they suggest that for all pupils and for all objectives, no single type of teaching is best. Medley (1979) points out that one important unanswered question concerning the nature of teacher effectiveness is whether a teacher who effectively produces one kind of gain with one kind of student will also effectively produce other kinds of gains with other kinds of students. For example, Brophy and Evertson (1974) found that many tests of indirectness at the primary grades failed to produce a relationship with achievement while studies at the higher grades did yield relationships with achievement. Evertson, Anderson, and Brophy (1978) found little support for direct instruction in English classes, yet teacher effectiveness research conducted in the elementary grades support using the direct instruction format, particularly for basic skills learning. Soar and Soar (1983) point out that consideration of context variables will lead to different recommendations for the best teaching practice, and include among their recommendations the following: teacher control of learning activities should vary, with less control for high-cognitive-level achievement [and] complex problem solving; higher structure is best for low-cognitive-level outcomes. It would appear that in addition to research-based generic teaching competencies as part of a teacher preparation program, serious consideration also must be given to researching appropriate teaching styles to fit the needs of the various disciplines.

Two seminal research studies conducted with college freshmen in English classrooms suggest the type of research which may address the cautions suggested by Medley (1979) and by Soar and Soar (1983). The conception of reading response as a complex process includes an emphasis on reasoning and on judging as essential

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elements in reading. The teacher of literature attempts to improve the individual's capacity to evoke meaning from the text by leading him to reflect self-critically on this reading process and to be open in response to the literature. The first research study by Peters and Blues (1978) focused its attention on the effect of one teacher characteristic, preference for complexity and tolerance to ambiguity as measured by the *Co Scale* of the *Omnibus Personality Inventory* (1962), on student achievement in response to literature. It was the purpose of this study to see if a significant relationship existed between the tolerance to ambiguity and preference for complexity in English teachers and student response to literature.

In order to analyze this problem, the following question was investigated:

> If teachers are randomly selected from a group who score High on the *Co Scale* of the *OPI* and if teachers are randomly selected from a group who score Low on the same scale, will there be a difference between the two groups in the effect they have on the achievement on the Written Response to Literature Test of freshmen college students who scored High or Low on the *Co Scale* of the *OPI*?

The measure of perception called complexity—Co, is related to an open, creative approach to phenomena and is a measure of intellectual disposition or orientation. This measure of 32 items reflects, according to the authors of the test,

> an experimental and flexible orientation rather than a fixed way of viewing and organizing phenomena. High scorers are tolerant of ambiguities and uncertainties; they are fond of novel situations and ideas.

The main effect of Teacher *Co OPI* on student Written Response to Literature Test scores was significant ($F = 7.72$, $p < .03$). The conclusion to be made from an analysis of the data was that teacher tolerance to ambiguity and preference for complexity did contribute to the development of student ability in written response to literature and that it is effective to a similar degree with all students rather than interacting with specific student *Co OPI* groups. One of the recommendations of this study was the need for further research into the characteristics attributed to high *Co* scorers and low *Co* scorers through observation and evaluation in the classroom in order to define teacher behaviors which could be associated with effective and noneffective teachers. If learning outcomes of students relate to high complexity teachers, then it seemed probable that a trait such as tolerance to ambiguity and preference for complexity as measured by the *Co Scale* of the *OPI* would relate to cognitive verbal reactions which the teacher creates in the classroom. A second study by Peters and Amburgey (1982) focused its attention on determining if there were differences between the cognitive verbal reactions in classroom environments created by teachers who score high on the *Co Scale* of the Omnibus Personality Inventory and teachers who score low on the *Co Scale* of the Omnibus Personality Inventory.

In order to analyze this problem, the following question was investigated:

> If teachers are randomly selected from a group who score High on the *Co Scale* of the OPI and teachers are randomly selected from a group who score Low on the same scale, will there be a difference in the cognitive verbal reactions which High and Low teachers create in the classroom?

Teachers with the six highest and the six lowest scores on the *Co Scale* were identified and freshmen college classes of each teacher selected were observed by a trained observer for a period of four weeks. This four week period was divided into two weeks at the beginning of the semester and two weeks at the middle of the semester. The observation instrument used to code cognitive verbal reactions was Gordon

Mork's Verbal Reaction Behavior Log (1971). The VRBL allows an observer to record the type and level of verbal behavior according to the categories and subcategories identified. The VRBL has three major categories, Cognitive, Skill, and Affective, with three subcategories under each heading. Cognitive Level I consists of facts and names; Cognitive Level II encompasses generalizations and major ideas; Cognitive Level III includes problem solutions and creative ideas.

The study included a finding of significance in the main effect of the cognitive verbal responses in classes of the teacher characteristic measured by the *Co Scale* of the *OPI* (Cognitive Level I, $F=6.85$, $p<.03$; Cognitive Level II, $F=5.43$, $p<.04$; Cognitive Level III, $F=4.87$, $p<.05$). This study provided evidence that high complexity teachers move their students into higher levels of cognition which allows for challenges to student thinking. Since students in the high complexity classrooms and students in the low complexity classrooms exhibited almost the same verbal reactions at Cognitive Level I, students were receiving basic information early in the semester. Students in the low complexity classrooms continued receiving basic information even at middle semester; however, students in the high complexity classrooms moved on to other, more complex cognitive levels at middle semester. A description of those persons who score high on the *Co Scale* of the *OPI* reveals tendencies toward those skills which seem best to foster the thoughtful response process and which seem best to sustain the process of inquiry in the classroom. It may be worthwhile to use research findings from studies of this nature to create in English teacher candidates an awareness of their basic potential in these areas by using the *Co Scale* as a diagnostic tool. If it may be worthwhile to bring candidates in English education to an awareness of their basic potential in those areas measured by the *Co Scale*, it may be equally worthwhile to identify teacher behaviors which can be associated with these teacher characteristics and to permit candidates to model these behaviors in simulated classroom situations. Beyond the generic teaching competencies, then, are those additional teaching competencies specific to various disciplines and to specialization areas which also must be provided a research base to validate the conceptual frameworks for teaching specific subject matter.

IMPLICATIONS FOR FUTURE RESEARCH

The rapid growth of the knowledge base supporting effective teaching and effective schools requires preparation programs to respond to this knowledge base. However, the complexity of teaching and learning does not permit simple solutions to complex problems. Teachers respond to a large number of demands, some of which are competing; therefore, teachers must be able to seek out alternatives to maximize desired outcomes.

A major responsibility of teacher preparation programs is to provide a context for rendering professional judgments. As Virginia Koehler (1983) suggests, structures to encourage constant updating of the knowledge base must be developed within teacher education institutions. On-going research projects need to be developed in which faculties are actively involved in preservice programs. Permanent faculty at such institutions would provide continuity and direction to overall research projects while

doctoral students become a part of the projects and work on specific subproblems for their dissertations. Such on-going projects would help provide the money, staff, and equipment needed to carry out significant research and would make possible more longitudinal research studies. Only with this kind of a base for research will studies be grounded in theory and will a number of research designs be utilized. Only in this way can we best involve classroom teachers and the problems they face.

Institutional structures which encourage research into not only optimum generic teaching strategies but also teaching styles for specific levels of the elementary school and for specific areas of the secondary school should produce a substantial array of research by which teacher education institutions can best diagnose and develop teaching potential within teacher education candidates. These kinds of research, coupled with other kinds of knowledge, will help to allow candidates to enter the teaching profession applying information intelligently in whatever teaching context they are placed. Such a knowledge base incorporated into teacher education programs should make such programs capable of producing teachers who can both know and explain what it is they wish to accomplish in the classroom and who can positively effect the learning of their students. Given the possibilities for teacher training which presently exist, it can, indeed, be the best of times for education.

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